

First Hit

L9: Entry 1 of 2

File: JPAB

Jun 27, 1995

FJB-NO: JP407165595A

DOCUMENT-IDENTIFIER: JP 07165595 A

TITLE: LIPID METABOLISM IMPROVER PREPARED FROM RICE

PUBN-DATE: June 27, 1995

INVENTOR-INFORMATION:

NAME

COUNTRY

TOKUYAMA, TAKASHI

ASSIGNEE-INFORMATION:

NAME

COUNTRY

SOKEN KK

APPL-NO: JP05342248

APPL-DATE: December 15, 1993

INT-CL (IPC): A61 K 35/78

ABSTRACT:

PURPOSE: To obtain an inexpensive lipid metabolism improver from rice having safety, stable supply of raw materials, applicable in a wide field, having complete safety even by daily use.

CONSTITUTION: This lipid metabolism improver prepared from rice comprises the followings or a composition containing the followings, (1) ground rice or ground germinated rice, (2) an extract of rice or germinated rice, (3) a substance obtained by decomposing a hydrolyzate or rice or germinated rice with an enzyme or treating the hydrolyzate with KOJI (malted rice), (4) in extracting rice or germinated rice, a substance obtained by decomposing the resultant substance with an enzyme or treating with KOJI before, during or after the extraction or (5) a substance obtained by subjecting a substance prepared by decomposing the extract of rice or germinated rice with an enzyme or treating with KOJI to alcohol fermentation or organic acid fermentation.

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First Hit**End of Result Set**

L6: Entry 14 of 14

File: DWPI

Jun 27, 1995

DERWENT-ACC-NO: 1995-261209

DERWENT-WEEK: 199534

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TITLE: Improving agents for lipid metabolism - comprise powder of whole rice or germinating rice, used for blood vessel treatment

PATENT-ASSIGNEE:

ASSIGNEE

CODE

SOKEN KK

SOKEN

PRIORITY-DATA: 1993JP-0342248 (December 15, 1993)

Search Selected

Search ALL

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PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<input type="checkbox"/> JP 07165595 A	June 27, 1995		006	A61K035/78

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
JP 07165595A	December 15, 1993	1993JP-0342248	

INT-CL (IPC): A61 K 35/78

ABSTRACTED-PUB-NO: JP 07165595A

BASIC-ABSTRACT:

Improving agents for lipid metabolism comprise or contain the powder of whole rice or germinating rice are new.

Also claimed are improving agents for lipid metabolism comprising or contg. the extract of rice grain or germinating rice; or the reactant prepd. by reacting a hydrolysate of rice or germinating rice with an enzyme or koji (malted rice). In the prepn. of the powder, whole rice or germinating rice is milled.

USE/ADVANTAGE - The improving agents for lipid metabolism are used as therapeutics for blood vessel troubles, dementia, or obesity. The improving agents for lipid metabolism can be used for long with no side-effects, prepd. in low-cost.

In an example, germ whole rice (10 kg) was added to water of 25 deg.C for 3 days, washed with water, dried at 50 deg.C for 24 hrs. and milled to give the rice powder (900g). E.g. 2: Unpolished whole rice was milled to form rice powder (500g). Water (1500 ml) was added to the rice powder, treated by hydrochloric acid for control of pH, and left for 10 days. The reactant was filtered to obtain a supernatant (1200

ml).

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: IMPROVE AGENT LIPID METABOLISM COMPRISE POWDER WHOLE RICE GERMINATE
RICE BLOOD VESSEL TREAT

DERWENT-CLASS: B04

CPI-CODES: B04-A10G; B14-E12; B14-F02; B14-J01A4;

CHEMICAL-CODES:

Chemical Indexing M1 *01*

Fragmentation Code

M423 M781 M903 P448 P520 P731 P814 R036 V400 V406

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C1995-118794

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(43) 公開日 平成7年(1995)6月27日

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識別記号

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ADN U 8217-4C

F I

技術表示箇所

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(71) 出願人 591002795

株式会社創研

香川県綾歌郡宇多津町2216-1

(72) 発明者 徳山 孝

香川県綾歌郡宇多津町2212

(74) 代理人 弁理士 清水 猛 (外2名)

(54) 【発明の名称】 米からの脂質代謝改善剤

(57) 【要約】

【目的】 安全で安価であり、原料供給が安定しており、広範囲の分野において応用が可能で、常用しても全く安全な脂質代謝改善剤を提供する。

【構成】 ①米または発芽させた米の粉碎物、②米または発芽させた米の抽出物、③米または発芽させた米の加水物を酵素分解または麴を作用させたもの、④米または発芽させた米を抽出するに当たり、その抽出前、抽出と同時にまたは抽出後に酵素分解または麴を作用させたもの、⑤米または発芽させた米の抽出物あるいは酵素分解または麴を作用させたものに、アルコール発酵あるいは有機酸発酵を行なったもの、以上それぞれをそのまま、あるいはこれを含有してなる米からの脂質代謝改善剤。

【特許請求の範囲】

【請求項1】 米または発芽させた米の粉碎物をそのまま、あるいはこれを含有してなる脂質代謝改善剤。

【請求項2】 米または発芽させた米の抽出物をそのまま、あるいはこれを含有してなる脂質代謝改善剤。

【請求項3】 米または発芽させた米の加水物を酵素分解または麴を作用させたものをそのまま、あるいはこれを含有してなる脂質代謝改善剤。

【請求項4】 米または発芽させた米を抽出するに当り、その抽出前、抽出と同時にまたは抽出後に酵素分解または麴を作用させたものをそのまま、あるいはこれを含有してなる脂質代謝改善剤。

【請求項5】 米または発芽させた米の抽出物あるいは酵素分解または麴を作用させたものに、アルコール発酵あるいは有機酸発酵を行なったものをそのまま、あるいはこれを含有してなる脂質代謝改善剤。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は、米または発芽させた米を原料として得られる医薬、食品等の分野で使用可能な、血管疾患、ボケ、老化、砂糖による肥満等脂質代謝に関係している疾患を予防あるいは治療することを目的とした脂質代謝改善剤である。

【0002】

【従来の技術】日本人の死亡原因は、癌、心疾患、脳血管疾患の順になっているが、心疾患と脳血管疾患の合計では、圧倒的に癌より多くなっている。したがって、脂質代謝改善は健康な生活を送る上で最も重要な課題となっている。脂質代謝を改善するために、さまざまな薬剤が開発利用されているが、これらの薬剤には、投与による副作用や使用量、使用期間に制限の問題がある。一方、食品分野では緑茶に脂質代謝効果があることが明らかになっているが、漢方薬と同様に応用分野が限られているのが問題である。すなわち、脂質代謝改善に対して有効で、しかも、副作用がなく、広い分野に適用でき、安全な脂質代謝改善剤は未だ開発されていないのが現状である。一方、米は主食以外に、清酒、焼酎、みりん、酢、麴などとして用途開発され、古くから生活に欠かせないものとなっている。このほかには、美容的用途として糠袋が知られている。これらは米を単なる主食であると見るか、またはせいぜい澱粉源としてしか見ていなかったということによるものであると思われる。また、糠袋にしても、皮膚によいとされ、慣例的にそのまま使用されてきたのみであり、有効成分という概念もなければ、その有効成分を利用するという考え方も全くなかったのである。

【0003】

【発明が解決しようとする課題】現在、薬剤の人体に対する副作用が問題となっており、全く副作用がなく、しかも、予防、治療剤として常用しても十分に安全で、広

範囲にわたって応用できる脂質代謝改善剤が要求されている。本発明は、安全で安価であり、原料供給が安定しており、広範囲の分野においし応用が可能で、例えば、HDLを上昇させ、LDLを低下させるという相方の効果が同時に顕著に得られ、常用しても全く安全な米からの脂質代謝改善剤を提供することを目的とするものである。

【0004】

【課題を解決するための手段】本発明者らは、動植物合和すの観点から、主食である米を中心に種々の植物成分の研究を進めてきた。その過程で、米には今まで予測できなかった数多くの可能性および効果があることが判明してきた。そこで、主食として用いられ、安全性が最も高いことが実証されている米をテーマとして取り上げ、米の総合利用研究を行ってきた。そのうちの一つのテーマとして、米からの脂質代謝改善剤について鋭意研究を重ねてきたのであるが、その過程で、米および発芽させた米には脂質代謝改善効果を有する成分が含有されていることを見出し、本発明を完成するに至った。

【0005】本発明において、米および発芽させた米に含有されている脂質代謝改善効果を有する成分は、未だ解明するに至っていないが、米および発芽させた米を、下記のように処理したものは、経口投与したところ、脂質代謝改善効果を示すことが判明した。

① 米および発芽させた米の粉碎物をそのまま、あるいはこれを含有してなるもの。

② 米または発芽させた米の抽出物をそのまま、あるいはこれを含有してなるもの。

③ 米または発芽させた米の加水物を酵素分解または麴を作用させたものをそのまま、あるいはこれを含有してなるもの。

④ 米または発芽させた米を抽出するに当り、その抽出前、抽出と同時にまたは抽出後に酵素分解または麴を作用させたものをそのまま、あるいはこれを含有してなるもの。

⑤ 米または発芽させた米の抽出物あるいは麴を作用させたものにアルコール発酵あるいは有機酸発酵を行なったものをそのまま、あるいはこれを含有してなるもの。

【0006】本発明で使用される米とは、ジャポニカ、インディカ米を問わず、うるち米、および餅米等の玄米および白米を指し、品種、種類は問わない。さらに、精白時に出てくる92%以上の赤糠、あるいは92%以下の白糠を使用してもよく、安価で経済的である。また、発芽させた米が使用される。なお、有効成分は、熱および光に対して安定であるため、上記の原料は、浸漬、蒸煮、焙煎（砂焙り、網焙り、熱風焙煎等全てを指す）、蒸煮焙煎、凍結乾燥等の表面変性、UV照射等の光変性、パットライス等の加圧焙煎、揚げる等の原料処理をしてもよく、また、効果も変わらなかった。米および発芽させた米は、そのまま用いても有効であるが、実用上

の面から粉碎して用いるのが好ましい。米および発芽させた米を粉碎して粉体化するには、粉碎機または精米機を用い、一般的な方法で行えばよい。

【0007】米を発芽させる場合、胚芽のついた米を水に浸漬あるいは水を噴霧して発芽させる。発芽させる時の温度は5〜70℃である。ただし、発芽さえすれば、温度および時間は問わない。また、発芽中に水が腐敗する危険性がある場合は、腐敗しないように水を取り替えるか、何らかの防腐を行うのが好ましい。ここで、発芽とは、発芽する直前から発芽したものまで全てを指す。この発芽させた米をよく洗浄して用いる。この時、乾燥して用いてもよい。米または発芽させた米を抽出、あるいは酵素分解または麴を作用させる場合、原料の米を粉碎して顆粒あるいは粉体化すると、表面積が大きくなるため効率がよくなる。粉碎しなくてもよいが、この場合には、米組織の分解および抽出に長時間を要する。

【0008】米または発芽させた米を水抽出する場合、抽出温度は、高温が効率的であるが、低温でも十分に抽出を行うことができる。ただし、40℃以下の低温の場合は、PHを酸性あるいはアルカリ性にするか、防腐剤あるいはアルコールを加えて、米が腐敗しないように処理することが望ましい。抽出時間は、有効成分さえ抽出できれば、長くて短くてもよく、抽出温度により定めればよい。また、抽出は、加圧下または常圧下で行っても、減圧下で行ってもよい。水抽出の場合、最も問題になるのは糊化現象である。糊状になれば、抽出効率が悪くなるばかりでなく、実作業においては困難を極める。これを防ぐためには、アミラーゼを加えて反応させるか、塩酸などで酸性にして澱粉を切つてやればよく、この方法を用いることにより、十分に解決でき、実用上も全く問題はない。

【0009】抽出物中の有効成分は、酸、アルカリに安定であるためか、酸分解抽出あるいはアルカリ分解抽出を行うのも有効である。この場合、必要により中和、脱塩を行う。有機溶媒で抽出する場合も、米はなるべく微粉碎または粉体化して抽出することが望ましい。有機溶媒はアルコール、アセトン、n-ヘキサン、メタノール等の一般的な有機溶媒でよいが、人体に対して有害なも

のは抽出後、溶媒を完全に除去する必要があるので安全なものが多い。また、米あるいは発芽させた米を酵素分解、または麴を作用させてもよい。ここで言う酵素分解とは、澱粉分解酵素、蛋白分解酵素、脂肪分解酵素、繊維分解酵素、リグニン分解酵素、ペクチン分解酵素等米に働く酵素を1種または2種以上作用させることをいう。また、麴として麴菌の種類および米の品種、種類は問わない。さらに、前記の抽出を行うに当り、抽出の前、抽出と同時に、または抽出の後に、上記の酵素分解および麴を作用させてもよい。

【0010】本発明においては、さらに上記の処理を行なうと同時にまたは処理後、アルコール発酵あるいは乳酸発酵、酢酸発酵等の有機酸発酵を行うと、次のような点でも有効である。まず、アルコール発酵を行えば、濃縮がしやすく、有効成分の濃縮が容易になる。また、乳酸発酵は飲料等の用途に使用する場合、風味をよくし、酢酸発酵は酢という調味液用途として本発明品を利用することができ、有機酸発酵することにより幅広い用途として使用することができる。また、92%以上の赤穂部分を調べてみたところ、効果はあるが、弱いことが判明した。以上のようにして得られた本発明品は、残渣を分離することなくそのまま、あるいは圧搾、濾過して用いる。また、そのまま用いるときは、殺菌あるいは除菌して用いる。乾燥して粉体、顆粒、錠剤等にして用いてもよい。さらに、様々な食品に配合して用いることもできる。

【0011】以下、具体的に、本発明品の脂質代謝改善効果について記載する。4週齢のddY系雄性マウスを、室温25℃、湿度60%に保たれた動物室で1週間、本発明品および水を自由接種させて飼育した後、実験に供した。実験は1群10匹で行った。被検液は1日1回午前10時に1群当たり20mlを給水瓶に入れ、自由に接種させた。投与4週間後にエーテル麻酔下頸動脈より全血採血し、定量操作に必要な処理をした後、血液成分の分析を行った。その結果は、表1に示すとおりである。

【0012】

【表1】

5
表 1

6

	LDL (mg/ dl)	VLDL (mg/ dl)	過酸化 脂質 (mmol/ ml)	総脂質 (mg/ dl)	トリグリ セリド (mg/ dl)	HDL-コレ ステロール (mg/ dl)	SOD (V/ ml)
実施例1で得た本発明品	37	55	10.0	628	90	110.8	7.2
実施例2で得た本発明品	39	53	9.6	626	92	117.3	8.2
実施例4で得た本発明品	37	51	9.0	621	88	118.6	9.3
もち米を実施例4と同様 にして得た本発明品	38	52	9.3	619	87	117.2	9.2
赤粳を実施例4と同様 にして得た本発明品	40	63	11.4	648	108	108.5	6.0
実施例5で得た本発明品	37	48	8.9	610	81	119.1	11.3
実施例6で得た本発明品	39	50	9.2	618	83	117.0	9.8
実施例8で得た本発明品	38	54	9.5	620	87	118.0	9.4
実施例10で得た本発明品	40	51	9.3	625	89	117.8	8.9
実施例12で得た本発明品	38	49	8.9	618	87	119.8	9.9
実施例14で得た本発明品	38	47	9.1	621	89	118.6	9.8
実施例16で得た本発明品	39	48	9.2	619	89	117.5	9.6
実施例18で得た本発明品	38	46	8.8	620	86	119.2	9.9
実施例20で得た本発明品	40	48	9.0	623	90	118.2	9.6
実施例22で得た本発明品	37	45	8.6	613	80	119.1	9.5
実施例24で得た本発明品	38	42	7.8	611	75	120.5	10.3
実施例26で得た本発明品	39	41	7.9	612	77	118.9	9.9
実施例28で得た本発明品	38	40	7.6	618	79	115.3	9.8
実施例30で得た本発明品	39	40	7.5	610	73	118.2	10.8
実施例32で得た本発明品	40	42	7.7	618	78	116.8	10.0
実施例34で得た本発明品	39	43	7.9	625	83	112.0	9.8
対 照	39	71	13.7	674	128	106.2	4.9

【0013】表1に示すとおり、本発明品投与群全てにおいて、善玉のHDL-コレステロールが上昇し、さらに、悪玉のトリグリセリド、LDL、VLDLおよび総コレステロールの減少が確認された。生体内での悪玉のトリグリセリド、LDL、VLDLの増加は、糖尿病、高脂血症等の血管疾患、さらには、ボケ、老化等に深く結びついている。すなわち、本発明品は、悪玉のトリグリセリド、LDL、VLDLを減少し、善玉のHDL-コレステロールを上昇することにより、上記の疾患等に非常に有効な脂質代謝改善剤が得られる。なお、実施例およびそれに伴うデータは、玄米の場合について記載したが、白米および92%以下の白糠の場合も同様の効果が認められた。

【0014】

【実施例】

（実施例1）胚芽のついたままの米1kgを25℃の水につけ、3日間浸漬させ、米を発芽させた。この発芽米をよく洗浄した後、50℃で24時間乾燥し、その後、細かく微粉碎し、本発明品990gを得た。

（実施例2）玄米を粉碎機にかけ、玄米の粉碎物500gを得た。この粉碎物に水1500mlを添加、塩酸で*50

30*PHを落とし10日間放置した。その後、絞り機で絞り、得た清澄液を中和して、本発明品1200mlと残渣760gを得た。

（実施例3）実施例1で得られた本発明品500gを用いて、実施例3と同様の操作を行い、別の本発明品1190mlを得た。

【0015】（実施例4）玄米を粉碎機にかけ、玄米の粉碎物500gを得た。この粉碎物に液化酵素10gと水1500mlを添加した。その後、徐々に温度を上げていき、5分間煮沸抽出した後、冷却した。その後、絞り機で絞り、本発明品1420mlと残渣560gを得た。

（実施例5）実施例1で得られた本発明品500gを用いて、実施例4と同様の操作を行い、別の本発明品1400mlを得た。

（実施例6）玄米を粉碎機にかけ、玄米の粉碎物500gを得た。この粉碎物に2N-NaOH1500mlを添加して5日間放置した。その後、絞り機で絞り、清澄液1350mlと残渣650gを得た。この清澄液を10N-HClで中和して、本発明品1480mlを得た。

【0016】(実施例7) 実施例1で得られた本発明品500gを用いて、実施例6と同様の操作を行い、別の本発明品1490mlを得た。

(実施例8) 玄米を粉碎機にかけ、玄米の粉碎物500gを得た。この粉碎物に95%エタノール1500mlを添加して、5日間放置した。その後、絞り機で絞り、清澄液1300mlと残渣650gを得た。この清澄液に水2000mlを添加し、ロータリーエバプレーターで濃縮し、本発明品1500mlを得た。

(実施例9) 実施例1で得られた本発明品500gを用いて、実施例8と同様の操作を行い、別の本発明品1500mlを得た。

【0017】(実施例10) 玄米を粉碎機にかけ、玄米の粉碎物500gを得た。この粉碎物に麴300g、水1500mlを加え、55℃で20時間放置した。その後、絞り機で絞り、本発明品1230mlと残渣1000gを得た。

(実施例11) 実施例1で得られた本発明品500gを用いて、実施例10と同様の操作を行い、別の本発明品1210mlを得た。

(実施例12) 玄米を粉碎機にかけ、玄米の粉碎物500gを得た。この粉碎物に蛋白分解酵素2gと水1500mlを加え、50℃で20時間放置した。その後、絞り機で絞り、本発明品1310mlと残渣670gを得た。

【0018】(実施例13) 実施例1で得られた本発明品500gを用いて、実施例12と同様の操作を行い、別の本発明品1380mlを得た。

(実施例14) 玄米を粉碎機にかけ、玄米の粉碎物500gを得た。この粉碎物に脂肪分解酵素2gと水1500mlを加え、50℃で20時間放置した。その後、絞り機で絞り、本発明品1290mlと残渣680gを得た。

(実施例15) 実施例1で得られた本発明品500gを用いて、実施例14と同様の操作を行い、別の本発明品1360mlを得た。

【0019】(実施例16) 玄米を粉碎機にかけ、玄米の粉碎物500gを得た。この粉碎物に繊維分解酵素2gと水1500mlを加え、50℃で20時間放置した。その後、絞り機で絞り、本発明品1330mlと残渣650gを得た。

(実施例17) 実施例1で得られた本発明品500gを用いて、実施例16と同様の操作を行い、別の本発明品1370mlを得た。

(実施例18) 玄米を粉碎機にかけ、玄米の粉碎物500gを得た。この粉碎物に澱粉分解酵素2gと水1500mlを加え、55℃で20時間放置した。その後、絞り機で絞り、本発明品1380mlと残渣600gを得た。

【0020】(実施例19) 実施例1で得られた本発明

品500gを用いて、実施例18と同様の操作を行い、別の本発明品1400mlを得た。

(実施例20) 玄米を粉碎機にかけ、玄米の粉碎物500gを得た。この粉碎物にペクチン分解酵素2gと水1500mlを加え、50℃で20時間放置した。その後、絞り機で絞り、本発明品1320mlと残渣660gを得た。

(実施例21) 実施例1で得られた本発明品500gを用いて、実施例20と同様の操作を行い、別の本発明品1300mlを得た。

【0021】(実施例22) 玄米を粉碎機にかけ、玄米の粉碎物500gを得た。この粉碎物に蛋白分解酵素2g、脂肪分解酵素2g、繊維分解酵素2g、澱粉分解酵素2g、ペクチン分解酵素2gと水1500mlを加え、50℃で20時間放置した。その後、絞り機で絞り、本発明品1420mlと残渣560gを得た。

(実施例23) 実施例1で得られた本発明品500gを用いて、実施例22と同様の操作を行い、別の本発明品1440mlを得た。

20 (実施例24) 実施例22と同様の操作をして、米の酵素分解物2000gを得た。その後、徐々に温度を上げていき、5分間煮沸抽出した後、冷却した。その後、絞り機で絞り、本発明品1400mlと残渣550gを得た。

【0022】(実施例25) 実施例1で得られた本発明品500gを用いて、実施例24と同様の操作を行い、別の本発明品1420mlを得た。

(実施例26) 玄米を粉碎機にかけ、玄米の粉碎物500gを得た。この粉碎物に麴300gと40%エタノール1500mlを加え、55℃で48時間放置した。その後、絞り機で絞り、清澄液1300mlと残渣850gを得た。その後、清澄液に1000mlの水を加え、ロータリーエバプレーターで濃縮し、本発明品1300mlを得た。

(実施例27) 実施例1で得られた本発明品500gを用いて、実施例26と同様の操作を行い、別の本発明品1300mlを得た。

【0023】(実施例28) 実施例4と同様にして、米の抽出物2000gを得た。この抽出物に蛋白分解酵素2g、脂肪分解酵素2g、繊維分解酵素2g、澱粉分解酵素2g、ペクチン分解酵素2gを添加し、50℃で24時間放置した。その後、絞り機で絞り、本発明品1400mlと残渣580gを得た。

(実施例29) 実施例1で得られた本発明品500gを用いて、実施例28と同様の操作を行い、別の本発明品1390mlを得た。

(実施例30) 実施例24と同様にして、米の酵素分解抽出物2000gを得た。この酵素分解抽出物に酵母を添加し、16日間アルコール発酵した。その後、絞り機で絞り、本発明品1880mlと残渣80gを得た。

【0024】(実施例31) 実施例1で得られた本発明品500gを用いて、実施例30と同様の操作を行い、別の本発明品1800mlを得た。

(実施例32) 実施例24と同様にして、米の酵素分解抽出物2000gを得た。この酵素分解抽出物を煮沸殺菌した後、37℃まで冷却し、前もって乳酸菌を培養したスターター200mlを添加後、よく攪拌密封し、37℃で2日間乳酸発酵を行った。その後、絞り機で絞り、本発明品1380mlと残渣500gを得た。

(実施例33) 実施例1で得られた本発明品500gを用いて、実施例32と同様の操作を行い、別の本発明品1400mlを得た。

【0025】(実施例34) 実施例24で得られた本発明品1000mlに95%エタノール80mlを添加し、20日間酢酸発酵を行った。その後、汙過をし、本発明品990mlを得た。

(実施例35) 実施例1で得られた本発明品500gを用いて、実施例34と同様の操作を行い、別の本発明品1000mlを得た。本発明品を配合して錠剤とする場合、および清涼飲料とする場合の実施例について、次に記載する。なお、配合例は以下の実施例に限定されるものではない。

【0026】(実施例36) 錠剤

実施例24で得られた本発明品100gをフリーズドライにより乾燥し、20gの乾燥品を得た。この乾燥品10gを下記のようにして、錠剤を得た。

本発明品	10g
ポリエチレングリコール6000	10g
ラウリル硫酸ナトリウム	1.5g

コーンスターチ 3g
乳糖 25g
ステアリン酸マグネシウム 0.5g
上記成分を秤量した後、ポリエチレングリコール6000を70～80℃に加温し、これに本発明品、ラウリル硫酸ナトリウム、コーンスターチおよび乳糖を加え混合後、そのまま冷却する。固化した混合物を粉碎器にかけ造粒する。本顆粒をステアリン酸マグネシウムと混合後圧縮打錠して、重量250mgの錠剤とする。

【0027】(実施例37) 清涼飲料

実施例22で得られた本発明品	15重量%
甘草エキス	0.01重量%
砂糖	4重量%
レモン果汁	2.5重量%
精製水	78.49重量%

常法により混合攪拌し、清涼飲料水を得た。

【0028】

【発明の効果】本発明によれば、米を原料として簡単に全く安全で、しかも、血管疾患、ボケ、老化、砂糖による肥満、等脂質代謝に関係する疾患の防止あるいは治療の効果を持つ優れた脂質代謝剤が提供される。米は今まで主食であったため、食以外の新規な分野での製法、利用用途はほとんど開発されていなかった。さらに、米は今まで主食とされてきたものであり、安全性も十分に実証されているものである。すなわち、本発明は、非常に優れた癌予防・治療剤を見出したばかりでなく、米の過剰生産といわれる現在、新たな利用用途を見出したこと、および米のイメージアップによる消費拡大を図り得ることは、極めて有意義なことである。

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(71)Applicant : SOKEN KK

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(72)Inventor : TOKUYAMA TAKASHI

(54) LIPID METABOLISM IMPROVER PREPARED FROM RICE

(57)Abstract:

PURPOSE: To obtain an inexpensive lipid metabolism improver from rice having safety, stable supply of raw materials, applicable in a wide field, having complete safety even by daily use.

CONSTITUTION: This lipid metabolism improver prepared from rice comprises the followings or a composition containing the followings, (1) ground rice or ground germinated rice, (2) an extract of rice or germinated rice, (3) a substance obtained by decomposing a hydrolyzate or rice or germinated rice with an enzyme or treating the hydrolyzate with KOJI (malted rice), (4) in extracting rice or germinated rice, a substance obtained by decomposing the resultant substance with an enzyme or treating with KOJI before, during or after the extraction or (5) a substance obtained by subjecting a substance prepared by decomposing the extract of rice or germinated rice with an enzyme or treating with KOJI to alcohol fermentation or organic acid fermentation.

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CLAIMS

[Claim(s)]

[Claim 1] The lipid metabolism improvement agent which comes to contain the grinding object of rice or the budded rice remaining as it is or this.

[Claim 2] The lipid metabolism improvement agent which comes to contain the extract of rice or the budded rice remaining as it is or this.

[Claim 3] The lipid metabolism improvement agent which comes to contain the thing on which zymolysis or koji was made for the adding-water object of rice or the budded rice to act remaining as it is or this.

[Claim 4] The lipid metabolism improvement agent which comes to contain [remaining as it is or this] the thing on which zymolysis or koji was made to act after an extract, coincidence, or an extract before the extract in extracting rice or the budded rice.

[Claim 5] The lipid metabolism improvement agent which comes to contain what performed alcoholic fermentation or organic acid fermentation to the thing on which the extract, zymolysis, or koji of rice or the budded rice was made to act remaining as it is or this.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention is a lipid metabolism improvement agent aiming at preventing or treating the disease which is related to lipid metabolism, such as obesity by an usable vascular disease and dotage, aging, and sugar, in rice or the budded rice in fields obtained as a raw material, such as physic and food.

[0002]

[Description of the Prior Art] Although the Japanese cause of death is the order of cancer, a heart disease, and the cerebrovascular disease, it is more than cancer overwhelmingly in the sum total of a heart disease and the cerebrovascular disease. Therefore, the lipid metabolism improvement has been the technical problem most important when you lead a healthy life. Although development use of various drugs is carried out in order to improve lipid metabolism, there are a side effect by administration and a problem of the limit to the amount used and duration of service in these drugs. On the other hand, although it is clear in the food field that the lipid metabolism effectiveness is in green tea, it is a problem that the applicable field is restricted like Chinese orthodox medicine. That is, to a lipid metabolism improvement, it is effective, moreover, there is no side effect, it can apply to a large field, and the present condition is that the safe lipid metabolism improvement agent is not yet developed. On the other hand, application development is carried out as sake, white distilled liquor, mirin, vinegar, koji, etc. in addition to the staple food, and rice is indispensable to the life for many years. **** is known as a cosmetics-application by others. These are considered to be what is depended on having regarded rice as it being the mere staple food, or having looked only as a source of starch at most. Moreover, even if it made it ****, it was presupposed that it was good for the skin, and it was used as it is customarily, and was a request, there was no concept of an active principle, and there was no view of using the active principle.

[0003]

[Problem(s) to be Solved by the Invention] Current and the side effect over the body of drugs pose a problem, there is no side effect, moreover, even if regularly used as prevention and a therapy agent, it is fully safe, and it reaches far and wide and the applicable lipid metabolism improvement agent is demanded. It is safe, and is cheap and feeding is stable, and the wide range effectiveness of Aikata of being able to carry out a field smell, and being able to apply, for example, raising HDL, and reducing LDL is notably acquired to coincidence, and even if it uses this invention regularly, it aims at offering the lipid metabolism improvement agent from completely safe rice.

[0004]

[Means for Solving the Problem] this invention persons have advanced research of various vegetable components from a viewpoint of animals-and-plants ***** centering on the rice which is the staple food. It has become clear that there are much possibility that it was not able to predict until now, and effectiveness in rice, in the process. Then, it was used as the staple food, and took up on the theme of U.S. with which it is proved that safety is the highest, and comprehensive use research of rice has been

done. As one of themes [them], although research was wholeheartedly come in piles about the lipid metabolism improvement agent from rice, to rice and the budded rice, it came to complete a header and this invention for the component which has a lipid metabolism improvement effect containing in the process.

[0005] In this invention, although it has still come to solve the component which has the lipid metabolism improvement effect contained to rice and the budded rice, when what processed rice and the budded rice as follows administered orally, it became clear that a lipid metabolism improvement effect was shown.

** The thing which comes to contain the grinding object of rice and the budded rice remaining as it is or this.

** The thing which comes to contain the extract of rice or the budded rice remaining as it is or this.

** The thing which comes to contain the thing on which zymolysis or koji was made for the adding-water object of rice or the budded rice to act remaining as it is or this.

** The thing which comes to contain [remaining as it is or this] the thing on which zymolysis or koji was made to act after an extract, coincidence, or an extract before the extract in extracting rice or the budded rice.

** The thing which comes to contain what performed alcoholic fermentation or organic acid fermentation to the thing on which the extract or koji of rice or the budded rice was made to act remaining as it is or this.

[0006] The rice used by this invention does not ask a japonica and indica rice, but points out brown rice and white rice, such as regular rice and glutinous rice, and a form and a class are not asked.

Furthermore, 92% or more of red bran which comes out at the time of cleaning, or 92% or less of Shiranuka may be used, and it is cheap, and economical. Moreover, the budded rice is used. In addition, the above-mentioned raw material could carry out raw material processing of pressurization-roasting an active principle to heat and light, such as the optical denaturation of surface denaturation, such as immersion, cooking, roast (all, such as *****, *****, and hot blast roast, are pointed out), cooking roast, and freeze drying, UV irradiation, etc., and putt rice, since it is stable, and it lifting, and did not change effectiveness, either. Although rice and the budded rice are effective even if it uses it as it is, grinding and using from a practical field is desirable. What is necessary is just to carry out by the general approach using a grinder or a rice sweeper, in order to grind and fine-particles-ize rice and the budded rice.

[0007] When budding rice, immersion or water is sprayed on water and the rice which the germ attached is budded in it. The temperature at the time of making it bud is 5-70 degrees C. However, if even a sprout is carried out, temperature and time amount will not be asked. Moreover, when the danger that water will rot is during a sprout, it is desirable to exchange water or to perform a certain preservation from decay so that it may not decompose. Here, a sprout points all out to what budded [from], just before budding. This budded rice is often washed and is used. You may dry and use at this time. When making an extract, zymolysis, or koji rice or the budded rice act, the rice of a raw material is ground, and if it fine-particles-izes, granulation or since surface area becomes large, effectiveness will become good. Although it is not necessary to grind, decomposition and an extract of the U.S. organization take a long time in this case.

[0008] Although extract temperature has an efficient elevated temperature when carrying out the water extract of rice or the budded rice, it can fully extract also at low temperature. However, in the case of low temperature 40 degrees C or less, it is desirable to make PH into acidity or alkalinity, or to add antiseptics or alcohol, and to process so that rice may not rot. What is necessary is for extract time amount to be long, or to be short, and just to define it with extract temperature, if even an active principle can be extracted. Moreover, an extract may be performed under pressurization or ordinary pressure, or you may carry out under reduced pressure. In a water extract, a formation-of-a-paste phenomenon becomes a problem most. If it becomes pastiness, in a real activity, extraction efficiency not only worsens, but will reach to an extreme of difficulty. In order to prevent this, that what is necessary is to add an amylase, and to make it react, or to make it acidity with a hydrochloric acid etc.,

and just to cut starch, by using this approach, it can fully solve and a problem does not have a practical use top, either.

[0009] Probably because the active principle in an extract is stable to an acid and alkali, it is also effective to perform an acidolysis extract or an alkalinity solution extract. In this case, neutralization and demineralization are performed as occasion demands. Also when an organic solvent extracts, as for rice, it is desirable to pulverize or fine-particles-size and to extract if possible. Although common organic solvents, such as alcohol, an acetone, n-hexane, and a methanol, are sufficient as an organic solvent, since a harmful thing needs to remove a solvent completely after an extract to the body, a safe thing is good. Moreover, zymolysis or koji may be made for rice or the budded rice to act. The zymolysis said here means one sort or making two or more sorts act for the enzyme which works to rice, such as amylolytic enzyme, a proteolytic enzyme, stearylolytic enzyme, a fiber dialytic ferment, a lignin dialytic ferment, and a pectin dialytic ferment. Moreover, the class of aspergillus and the form of rice, and a class are not asked as koji. Furthermore, in performing the aforementioned extract, above-mentioned zymolysis and koji may be made to act after an extract, coincidence, or an extract before an extract.

[0010] In this invention, if the further above-mentioned processing is performed and organic acid fermentation, such as alcoholic fermentation or lactic acid fermentation, and acetic acid fermentation, will be performed after coincidence or processing, it is effective also at the following points. First, if alcoholic fermentation is performed, it will be easy to carry out concentration and concentration of an active principle will become easy. Moreover, when using it for the application of a drink etc., lactic acid fermentation improves flavor, and acetic acid fermentation can use this invention article as a seasoning liquid application of vinegar, and it can use it as a broad application by carrying out organic acid fermentation. Moreover, although it was effective when 92% or more of red bran part was investigated, the weak thing became clear. without this invention article obtained as mentioned above separates residue -- as it is -- or it squeezes, filters and uses. Moreover, when using as it is, it sterilizes, or disinfects and uses. It may dry and you may use by making it fine particles, granulation, a tablet, etc. Furthermore, it can also blend and use for various food.

[0011] Hereafter, the lipid metabolism improvement effect of this invention article is indicated concretely. The experiment was presented, after carrying out free inoculation of this invention article and the water and breeding them for one week at the animal room maintained at the room temperature of 25 degrees C, and 60% of humidity in the 4-weeks old ddY system male mouse. The experiment was conducted by one groups [ten]. Sample liquid put 20ml per group into the water supply bottle once [1] per day in 10:00 a.m., and was made to inoculate it freely. After carrying out whole blood blood collecting and carrying out processing required for quantum actuation from the bottom carotid artery of anesthesia after four weeks of administration, analysis of a constituent of blood was performed. The result is as being shown in Table 1.

[0012]

[Table 1]

表 1

	LDL (mg/ dl)	VLDL (mg/ dl)	過酸化 脂質 (nmol/ ml)	総脂質 (mg/ dl)	トリグリセ リド (mg/ dl)	HDL-コレ ステロール (mg/ dl)	SOD (V/ ml)
実施例1で得た本発明品	37	55	10.0	628	90	110.8	7.2
実施例2で得た本発明品	39	53	9.6	626	92	117.3	8.2
実施例4で得た本発明品	37	51	9.0	621	88	118.6	9.3
もち米を実施例4と同様 にして得た本発明品	38	52	9.3	619	87	117.2	9.2
赤米を実施例4と同様 にして得た本発明品	40	63	11.4	648	108	108.5	6.0
実施例5で得た本発明品	37	48	8.9	610	81	119.1	11.3
実施例6で得た本発明品	39	50	9.2	618	83	117.0	9.8
実施例8で得た本発明品	38	54	9.5	620	87	118.0	9.4
実施例10で得た本発明品	40	51	9.3	625	89	117.8	8.9
実施例12で得た本発明品	38	49	8.9	618	87	119.8	9.9
実施例14で得た本発明品	38	47	9.1	621	89	118.6	9.8
実施例16で得た本発明品	39	48	9.2	619	89	117.5	9.6
実施例18で得た本発明品	38	46	8.8	620	86	119.2	9.9
実施例20で得た本発明品	40	48	9.0	623	90	118.2	9.6
実施例22で得た本発明品	37	45	8.6	613	80	119.1	9.5
実施例24で得た本発明品	38	42	7.8	611	75	120.5	10.3
実施例26で得た本発明品	39	41	7.9	612	77	118.9	9.9
実施例28で得た本発明品	38	40	7.6	618	79	115.3	9.8
実施例30で得た本発明品	39	40	7.5	610	73	118.2	10.8
実施例32で得た本発明品	40	42	7.7	618	78	116.8	10.0
実施例34で得た本発明品	39	43	7.9	625	83	112.0	9.8
対 照	39	71	13.7	674	128	106.2	4.9

[0013] In all this invention article administration groups, good HDL cholesterol went up and reduction of bad triglyceride, LDL and VLDL, and total cholesterol was further checked as shown in Table 1. The triglyceride of a villain in the living body and the increment in LDL and VLDL faded to vascular diseases, such as diabetes mellitus and hyperlipidemia, and a pan, and are deeply connected with them at aging etc. That is, a lipid metabolism improvement agent very effective in the above-mentioned disease etc. is obtained by this invention articles' decreasing in number bad triglyceride, and LDL and VLDL, and going up good HDL cholesterol. In addition, although an example and the data accompanying it indicated the case of brown rice, white rice and effectiveness with the same said of the case of 92% or less of Shiranuka were accepted.

[0014]

[Example]

(Example 1) as for the germ, as stuck -- the U.S. -- you soaked 1kg in 25-degree C water, and made it immersed for three days, and rice was budded. After often washing this sprout rice, it dried at 50 degrees C for 24 hours, and pulverized finely after that, and 990g of this invention articles was obtained.

(Example 2) Brown rice was covered over the grinder and 500g of grinding objects of brown rice was obtained. Addition and a hydrochloric acid dropped PH on this grinding object, and 1500ml of water was left for ten days. Then, it extracted with the diaphragm machine, the obtained founding liquid was neutralized, and 1200ml of this invention articles and 760g of residue were obtained.

(Example 3) Using 500g of this invention articles obtained in the example 1, the same actuation as an example 3 was performed, and 1190ml of another this invention articles was obtained.

[0015] (Example 4) Brown rice was covered over the grinder and 500g of grinding objects of brown rice was obtained. 10g of hankyu liquifase and 1500ml of water were added in this grinding object. Then, temperature was raised gradually, and it cooled, after carrying out a boiling extract for 5 minutes. Then, it extracted with the diaphragm machine and 1420ml of this invention articles and 560g of residue were obtained.

(Example 5) Using 500g of this invention articles obtained in the example 1, the same actuation as an example 4 was performed, and 1400ml of another this invention articles was obtained.

(Example 6) Brown rice was covered over the grinder and 500g of grinding objects of brown rice was obtained. 2 N-NaOH1500ml was added in this grinding object, and it was left for five days in it. Then, it extracted with the diaphragm machine and 1350ml of founding liquid and 650g of residue were obtained. This founding liquid was neutralized by 10N-HCl, and 1480ml of this invention articles was obtained.

[0016] (Example 7) Using 500g of this invention articles obtained in the example 1, the same actuation as an example 6 was performed, and 1490ml of another this invention articles was obtained.

(Example 8) Brown rice was covered over the grinder and 500g of grinding objects of brown rice was obtained. Ethanol 1500ml was added 95% in this grinding object, and it was left for five days. Then, it extracted with the diaphragm machine and 1300ml of founding liquid and 650g of residue were obtained. 2000ml of water was added in this founding liquid, it condensed by rotary EBAPURETA, and 1500ml of this invention articles was obtained.

(Example 9) Using 500g of this invention articles obtained in the example 1, the same actuation as an example 8 was performed, and 1500ml of another this invention articles was obtained.

[0017] (Example 10) Brown rice was covered over the grinder and 500g of grinding objects of brown rice was obtained. 300g of koji and 1500ml of water were added to this grinding object, and it was left at 55 degrees C for 20 hours. Then, it extracted with the diaphragm machine and 1230ml of this invention articles and 1000g of residue were obtained.

(Example 11) Using 500g of this invention articles obtained in the example 1, the same actuation as an example 10 was performed, and 1210ml of another this invention articles was obtained.

(Example 12) Brown rice was covered over the grinder and 500g of grinding objects of brown rice was obtained. 2g of proteolytic enzymes and 1500ml of water were added to this grinding object, and it was left at 50 degrees C for 20 hours. Then, it extracted with the diaphragm machine and 1310ml of this invention articles and 670g of residue were obtained.

[0018] (Example 13) Using 500g of this invention articles obtained in the example 1, the same actuation as an example 12 was performed, and 1380ml of another this invention articles was obtained.

(Example 14) Brown rice was covered over the grinder and 500g of grinding objects of brown rice was obtained. 2g of stearylolytic enzyme and 1500ml of water were added to this grinding object, and it was left at 50 degrees C for 20 hours. Then, it extracted with the diaphragm machine and 1290ml of this invention articles and 680g of residue were obtained.

(Example 15) Using 500g of this invention articles obtained in the example 1, the same actuation as an example 14 was performed, and 1360ml of another this invention articles was obtained.

[0019] (Example 16) Brown rice was covered over the grinder and 500g of grinding objects of brown rice was obtained. 2g of fiber dialytic ferments and 1500ml of water were added to this grinding object, and it was left at 50 degrees C for 20 hours. Then, it extracted with the diaphragm machine and 1330ml of this invention articles and 650g of residue were obtained.

(Example 17) Using 500g of this invention articles obtained in the example 1, the same actuation as an example 16 was performed, and 1370ml of another this invention articles was obtained.

(Example 18) Brown rice was covered over the grinder and 500g of grinding objects of brown rice was obtained. 2g of amylolytic enzyme and 1500ml of water were added to this grinding object, and it was left at 55 degrees C for 20 hours. Then, it extracted with the diaphragm machine and 1380ml of this invention articles and 600g of residue were obtained.

[0020] (Example 19) Using 500g of this invention articles obtained in the example 1, the same actuation as an example 18 was performed, and 1400ml of another this invention articles was obtained.

(Example 20) Brown rice was covered over the grinder and 500g of grinding objects of brown rice was obtained. 2g of pectin dialytic ferments and 1500ml of water were added to this grinding object, and it was left at 50 degrees C for 20 hours. Then, it extracted with the diaphragm machine and 1320ml of this invention articles and 660g of residue were obtained.

(Example 21) Using 500g of this invention articles obtained in the example 1, the same actuation as an example 20 was performed, and 1300ml of another this invention articles was obtained.

[0021] (Example 22) Brown rice was covered over the grinder and 500g of grinding objects of brown rice was obtained. 2g of proteolytic enzymes, 2g of stearylolytic enzyme, 2g of fiber dialytic ferments, 2g of amylolytic enzyme, 2g of pectin dialytic ferments, and 1500ml of water were added to this grinding object, and it was left at 50 degrees C for 20 hours. Then, it extracted with the diaphragm machine and 1420ml of this invention articles and 560g of residue were obtained.

(Example 23) Using 500g of this invention articles obtained in the example 1, the same actuation as an example 22 was performed, and 1440ml of another this invention articles was obtained.

(Example 24) The same actuation as an example 22 was carried out, and 2000g of enzyme decomposition products of rice was acquired. Then, temperature was raised gradually, and it cooled, after carrying out a boiling extract for 5 minutes. Then, it extracted with the diaphragm machine and 1400ml of this invention articles and 550g of residue were obtained.

[0022] (Example 25) Using 500g of this invention articles obtained in the example 1, the same actuation as an example 24 was performed, and 1420ml of another this invention articles was obtained.

(Example 26) Brown rice was covered over the grinder and 500g of grinding objects of brown rice was obtained. Ethanol 1500ml was added to this grinding object 40% with 300g of koji, and it was left at 55 degrees C for 48 hours. Then, it extracted with the diaphragm machine and 1300ml of founding liquid and 850g of residue were obtained. Then, it added water to 1000ml water in founding liquid, and condensed by rotary EBAPURETA, and 1300ml of this invention articles was obtained.

(Example 27) Using 500g of this invention articles obtained in the example 1, the same actuation as an example 26 was performed, and 1300ml of another this invention articles was obtained.

[0023] (Example 28) 2000g of extracts of rice was obtained like the example 4. 2g of proteolytic enzymes, 2g of stearylolytic enzyme, 2g of fiber dialytic ferments, 2g of amylolytic enzyme, and 2g of pectin dialytic ferments were added to this extract, and it was left at 50 degrees C for 24 hours. Then, it extracted with the diaphragm machine and 1400ml of this invention articles and 580g of residue were obtained.

(Example 29) Using 500g of this invention articles obtained in the example 1, the same actuation as an example 28 was performed, and 1390ml of another this invention articles was obtained.

(Example 30) 2000g of zymolysis extracts of rice was obtained like the example 24. Alcoholic fermentation of the yeast was added and carried out to this zymolysis extract for 16 days. Then, it extracted with the diaphragm machine and 1880ml of this invention articles and 80g of residue were obtained.

[0024] (Example 31) Using 500g of this invention articles obtained in the example 1, the same actuation as an example 30 was performed, and 1800ml of another this invention articles was obtained.

(Example 32) 2000g of zymolysis extracts of rice was obtained like the example 24. After carrying out boiling sterilization of this zymolysis extract, it cooled to 37 degrees C, and after adding starter 200ml which cultivated lactic acid bacteria beforehand, stirring seal was improved and lactic acid fermentation was performed for two days at 37 degrees C. Then, it extracted with the diaphragm machine and 1380ml of this invention articles and 500g of residue were obtained.

(Example 33) Using 500g of this invention articles obtained in the example 1, the same actuation as an example 32 was performed, and 1400ml of another this invention articles was obtained.

[0025] (Example 34) Ethanol 80ml was added 95% in 1000ml of this invention articles obtained in the example 24, and acetic acid fermentation was performed for 20 days. Then, it filtered and 990ml of this invention articles was obtained.

(Example 35) Using 500g of this invention articles obtained in the example 1, the same actuation as an example 34 was performed, and 1000ml of another this invention articles was obtained. When blending this invention article and considering as a tablet, the example in the case of considering as a soft drink is indicated below. In addition, the example of combination is not limited to the following examples.

[0026] (Example 36) 100g of this invention articles obtained in the tablet example 24 was dried by freeze-dry, and the 20g desiccation article was obtained. The tablet was obtained as follows [10g of this desiccation article].

this invention article The 10g polyethylene glycol 6000 10g sodium lauryl sulfate 1.5g corn starch 3g lactose 25g magnesium stearate After carrying out weighing capacity of the 0.5g above-mentioned component, a polyethylene glycol 6000 is warmed at 70-80 degrees C, this invention article, sodium lauryl sulfate, corn starch, and a lactose are added to this, and it remains as it is after mixing. It cools. The solidified mixture is covered over a crusher and corned. After [mixing] compression tableting of this granulation is carried out with magnesium stearate, and it considers as a tablet with a weight of 250mg.

[0027] (Example 37) This invention article obtained in the soft drink example 22 15-% of the weight glycyrrhiza extract 0.01-% of the weight sugar 4-% of the weight lemon fruit juice 2.5-% of the weight purified water Mixed stirring was carried out with the conventional method 78.49% of the weight, and soft drinks were obtained.

[0028]

[Effect of the Invention] According to this invention, it is completely simply safe considering rice as a raw material, and, moreover, the outstanding lipid metabolism agent with the effectiveness of prevention of the disease related to lipid metabolism, such as obesity by the vascular disease, dotage, aging, and sugar, or a therapy is offered. Since rice was the staple food until now, most of the process in new fields other than a meal and a use application was not developed. Furthermore, rice is used as the staple food until now, and safety is also fully proved. That is, it is very significant this invention not only to find out cancer prevention / therapy agent which was very excellent, but to have found out current [which is called overproduction of rice] and a new use application, and that consumption expansion by improvement in image of rice can be aimed at.

[Translation done.]